REMARKS

Claim 15

The invention, as now presented in amended claim 15, relates to a video editing system that includes a random-access computer-readable medium for storing video information in data files, a display, and a standard alphanumeric keyboard. The system also includes computing apparatus that is operative to display information from the data files in a source video window and to display results of editing operations in an edited window. The computing apparatus can select between these windows in response to a signal from a key on the alphanumeric keyboard. Three adjacent keys in the alphanumeric keyboard control shuttling of playback of the video information in the selected window. A first of the keys is for forward shuttling, a second is for pausing, and a third is for reverse shuttling. Multiple successive actuations of the first key causes a change in forward shuttle speed and multiple successive actuations of the third key causes a change in reverse shuttle speed.

This aspect of the invention can allow a user to efficiently and intuitively shuttle backwards and forwards through material at different speeds to find an edit point using only a few keystrokes of three fingers of one hand. For example, a user could begin shuttling through a large video file by pressing the forward shuttle key a few times to quickly shuttle toward a desired edit point. As the edit point approaches, the user can then slow the shuttling to a slower rate by pressing the reverse shuttle key a few times. Finally, the user can press the pause key to pause the video file playback at or near the desired edit point. If the user passes the edit point, he or she can begin reverse shuttling in a single keystroke and then pause at the edit point with another keystroke. This shuttling interface allows a user to reach an edit point efficiently and intuitively while leaving one hand free to perform other operations.

Claim 15 stands rejected as anticipated by Anderson. Anderson discloses a keyboard for a computer editing system. This keyboard is said to be representative of features available in top-of-the line computer editing systems (p 67, col. 2). It includes a series of the following six keys: REW, FWD, PLAY, STOP, CUE, SLOW (p. 69, col. 1).

But Anderson does not disclose that multiple actuations of any of his keys should result in speed variations. Anderson instead presents a set of motion functions spanning six keys, which include keys for different speeds (e.g., FWD, PLAY, SLOW). Providing different keys for

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different speeds is clearly different from providing for multiple key actuations to change speeds, as the keys are used in different ways to perform very common editing operations. Successively pressing Anderson's PLAY key and then his FWD key, for example, would appear to result in a change in playback speed, but this operation involves more than one key, and there is no disclosure that multiple actuations of either of these keys would have the same effect. Moreover, because Anderson's motion functions span six keys, the user must move his or her hand, and possibly even look at the keys, to change the playback speed in at least some instances. The use of six keys instead of three may also tie up keys that could be used for other functions. Anderson therefore fails to anticipate claim 15 as now amended.

Nor does Anderson suggest the shuttling arrangement presented in claim 15. Because the Anderson document presents a solution to the problem of finding edit points, this document would not suggest to one of ordinary skill that an alternative solution should be sought. And Anderson's characterizations of his keyboard as representative of top-of-the line editing systems would further dissuade one of ordinary skill from seeking alternative approaches to the problem of seeking an edit point. Anderson therefore fails altogether to suggest the invention as now presented in amended claim 15.

Claims 21, 27, 33, 39, 45, 63, and 65 also distinguish over the prior art of record for at least reasons similar to those advanced in support of claim 15.

Claim 51

The invention, as now presented in claim 51, relates to a video editing system that includes a random-access computer-readable medium for storing video information in data files, a display, and a standard alphanumeric keyboard. The system also includes computing apparatus that is operative to perform editing operations on the video information, and to display video information from the one or more data files on the display. Four adjacent keys from the standard alphanumeric keyboard control trimming of a selected transition in the video information. A first of the four keys is for trimming a plurality of frames in a reverse direction, a second is for trimming one frame in a reverse direction, a third is for trimming one frame in a forward direction, and a fourth is for trimming a plurality of frames in a forward direction.

This aspect of the invention can allow a user to efficiently and intuitively move backwards and forwards through material at different speeds to trim a scene in a video composition using only

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a few keystrokes of the fingers of one hand. For example, a user could begin by coarsely moving a transition several frames at a time using the multi-frame keys until an approximate new transition point is found. The user could then tweak the exact location of the transition using the single-frame keys. If the user passes the optimal transition point, he or she can then begin single-frame or multi-frame reverse trimming operations in a single keystroke.

In a more specific example of the editing of a dance performance shot with multiple cameras, the user could use the multi-frame keys to select a different one of the dancer's steps for the transition point based on the visual content of the video material. This selected step might be the last step before a boom becomes visible, for example, or it might just be a slightly earlier step that the user is experimenting with. Once the step has been coarsely selected, the user can adjust the transition point with the single-frame keys to achieve the best visual flow from one camera's vantage point to another's. The best visual flow might be achieved by setting the transition point when one of the dancer's feet is at its very highest point, for example, or when his or her arms are fully outstretched. The four-key interface of this aspect of the invention allows this entire trimming process to be performed quickly and intuitively while leaving one hand free to perform other operations.

Claim 51 stands rejected as anticipated by Anderson. As presented above, Anderson discloses a keyboard for a computer editing system that is said to be representative of features available in top-of-the line computer editing systems. It includes a TRIM IN key next to a TRIM OUT key, which are said to allow the user to make "plus or minus" adjustments ("trims") to the edit point numbers (p. 69, col. 2). Trims are said to be entered in frame numbers, or in hours-minutes-seconds-frames, depending on the edit system.

Anderson presents as an example a multi-take dance sequence in which a director decides to cut to a particular take for four seconds at a point 30 seconds into a song (see p. 70, col. 1, ¶ 1). To do this, the editor would begin by entering the record start point (01204000) into both the record and playback VTRs. The editor would then activate the "trim in" key for the playback VTR and enter a calculated offset (07301520). This offset is obtained by subtracting one code number from another (page. 69, col. 2, ¶ 3).

Anderson's trim keys are significantly different from those of the invention as it is presented in claim 51. In the invention, the user can use the trim keys to intuitively move through material in the forward and reverse directions at different speeds with one hand, while looking at the screen. In

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Anderson's method the trim keys are for use with numerical values that have been obtained by mathematical subtraction. This calculation-based approach clearly fails to anticipate the intuitive single-key/multi-key approach as claimed in claim 51. Nor does any other set of keys in the Anderson reference perform the function claimed in claim 51.

Anderson also fails altogether to suggest the trimming arrangement presented in claim 51. There is nothing in the Anderson reference that would point to the invention's the intuitive single-key/multi-key approach. And Anderson's characterizations of his keyboard as representative of top-of-the line editing systems would further dissuade one of ordinary skill from seeking alternative approaches to trimming. Anderson therefore does not suggest the invention as presented in claim 51.

Claim 67

The invention, as presented in claim 67, relates to a video editing system that includes a random-access computer-readable medium for storing video information in data files, a display, and a standard alphanumeric keyboard. The system also includes computing apparatus operative to display video information from the one or more data files on the display. The system is also 1) operative in response to signals from a first set of keys on a left hand side of the standard alphanumeric keyboard to control marking operations on the video information, 2) operative in response to signals from a second set of keys on a right hand side of the standard alphanumeric keyboard to control shuttling of playback of the video information, and 3) operative in response to signals from a third set of keys on the right hand side of the standard alphanumeric keyboard to control trimming of the marked video information.

This distribution of editing functions allows the user a high degree of productivity. The user can perform marking operations with one hand, while selecting between trimming and shuttling operations with the other. A experienced user can therefore mark edit points immediately after, or even during, shuttling without taking his or her eyes away from the video material. The same experienced user can also mark and trim in a similar manner. And this experienced editor can even move back and forth between the shuttle and trim modes while maintaining his or her left hand on the mark keys. This overall mode of operation is both intuitive and powerful.

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Claim 67 stands rejected as anticipated by Anderson. As presented above, Anderson discloses a keyboard for a computer editing system that is said to be representative of features available in top-of-the line computer editing systems. As shown in Fig. 3.6, it includes a TRIM IN key next to a TRIM OUT key that are above, and to the right of MARK IN and MARK OUT keys. It also includes a series of the following six keys: REW, FWD, PLAY, STOP, CUE, SLOW (p. 69, col. 1).

But this configuration does not allow the user to easily operate the TRIM and MARK functions with different hands. And it is even more awkward to for the user to switch from the TRIM IN and TRIM OUT keys to the FWD and REW keys while continuing to perform mark operations, because these two sets are located on opposite sides of the keyboard. Anderson therefore fails to anticipate claim 67 as now amended. Nor does Anderson disclose anywhere that his representative keyboard should be modified in such a way as to suggest the invention as claimed in claim 67.

Claim 68 also distinguishes over the prior art of record for at least reasons similar to those advanced in support of claim 67.

Claim 48

The invention, as now presented in amended claim 48 relates to an alphanumeric keyboard for use with a computerized video editing system. This keyboard includes 36 alphanumeric keys and additional keys with typographical symbols disposed in a standard keyboard layout. A set of three adjacent keys includes a first key on the user's left bearing a label indicative of a reverse shuttling function, a second, central key bearing a label indicative of a pause function, and a third key on the user's right bearing a label indicative of a forward shuttling function.

This type of keyboard presents an intuitive and easy-to-learn user interface for a computer-based editing system. Because the forward and reverse shuttling functions are placed around the pause function, the key positions provide a spatial correspondence between motion of the video material and the user's hand. Shuttling forward, for example, evokes movement to the right, while shuttling backwards evokes movement to the left. And between forward and reverse there is a pause position, which corresponds both to the conceptual mid point between the two

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types of motions and to the central key in the set of keys. This spatial correspondence makes the system straightforward to learn, and intuitive to work with.

Claim 48 stands rejected as anticipated by Anderson. As presented above, Anderson discloses a keyboard for a computer editing system that is said to be representative of features available in top-of-the line computer editing systems. It includes a series of the following six keys: REW, FWD, PLAY, STOP, CUE, SLOW (p. 69, col. 1).

But this arrangement does not provide the same conceptual arrangement. There is no key at a conceptual mid point between forward and reverse shuttling keys. To stop, cue, or play, the user must use a key that is located outside of the REW and FWD key set. Anderson therefore fails to anticipate claim 48 as it is now amended. And he does not disclose anywhere that his representative keyboard should be modified in such a way as to suggest the invention as now claimed in amended claim 48.

Claim 69

Claim 69 is new and its examination is respectfully requested. Claim 69 is dependent on claim 48 and includes a timeline module, which can display a horizontal timeline that can move during shuttling operations. This timeline movement provides feedback to the user as he or she uses the shuttling function, and can further reinforce the spatial metaphor provided by the three adjacent shuttling keys.

The remaining claims are dependent, and should be allowable for at least the reason that they depend on an allowable claim. This application should therefore now be in condition for allowance and such action is respectfully requested. The Commissioner is hereby authorized to charge any additional fees that may be required, or credit any overpayment, to Deposit Account No. 50-0750.

Respectfully submitted,

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